

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-36 are pending in the application, with claims 1, 13, and 25 being the independent claims. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Rejections under 35 U.S.C. § 101***

Claims 25-36 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Applicant respectfully traverses the rejection and provides the following arguments to support patentability.

Claim 25 recites a computer program product comprising a computer useable medium having computer program logic recorded thereon for enabling a processor to facilitate communication between devices in a broadband communication system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard.

The computer program logic includes:

means for enabling the processor to establish a logical channel for communication between a first device that implements at least one proprietary communication parameter associated with bandwidth utilization and other devices that support said at least one proprietary communication parameter;

means for enabling the processor to receive registration information from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter; and

means for enabling the processor to assign said second device to said logical channel in response to receiving said registration information.

(*see*, claim 25)

Applicant respectfully points the Examiner to Page 35 of the specification. (*see*, Applicant's Specification, Page 35, para. [0012]). According to Page 35,

the term "computer program product" may refer, in part, to removable storage [unit], removable storage [unit], a hard disk installed in hard disk [drive], or *a carrier wave carrying software over communication [path] (wireless link or cable) to [a] communication interface.*

(*emphasis added, see*, Applicant's Specification, Page 35, para. [0012]).

The Office Action appears to allege that claim 25 is non-statutory because it includes "media that transmit a carrier wave." (*see*, Office Action, Page 2). However, the "carrier wave" is man-made and is, thus, a manufacture. In *Arrhythmia*, the Federal Circuit recognized that man-made signals are manufactures. *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F. 2d 1053, 1059, (Fed. Cir. 1992)("[t]he view that 'there is nothing necessarily physical about 'signals' is incorrect.>"). The Supreme Court in *O'Reilly v. Morse* also recognized the patentability of signals. In *O'Reilly*, the Court found claim 5 which recited "the system of signs, consisting of dots and spaces ... for telegraphic purposes" to be statutory stating "[t]he fifth, is a claim to the system of signs ... for telegraphic purposes; being an improved instrumentality in the art of telegraphing by electricity or galvanism." 56 U.S. (15 How.) 62, 101 (1853). The "carrier wave" is structural and functional reciting, in part, that the content "carrier wave" includes "carrying software over communication [path] (wireless link or cable) to [the] communication interface." The "carrier wave" is manufactured to be propagated from one location to another. For at least these reasons, claim 25 is directed to statutory

subject matter. Dependent claims 26-36 are likewise directed to statutory subject matter for the same reasons as claim 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 25-36 under 35 U.S.C. § 101 be reconsidered and withdrawn.

***Rejections under 35 U.S.C. § 103***

***Bunn in view of Cloonan***

Claims 1-3, 13-14, 17, and 25-27 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Application Publication No. 2007/0058640 to Bunn et al. (herein "Bunn") in view of U.S. Patent Application Publication No. 2004/0008683 to Cloonan et al. (herein "Cloonan"). Applicant respectfully traverses the rejection and provides the following arguments to support patentability as follows:

Claim 1 recites a method for improving channel efficiency in a broadband communication system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard. The method includes the steps of:

establishing a logical channel for communication between a first device that supports at least one proprietary communication parameter associated with bandwidth utilization and other devices that support said at least one proprietary communication parameter;

receiving registration information from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter; and

assigning said second device to said logical channel in response to receiving said registration information.

(see, claim 1).

As will be described in more detail below, Bunn does not teach or suggest at least the steps of "establishing a logical channel for communication between a first device that

supports at least *one proprietary communication parameter* associated with bandwidth utilization and other devices that support said at least *one proprietary communication parameter*" and/or "receiving registration information from a second device, wherein said registration information indicates that said second device supports said at least *one proprietary communication parameter*" as recited by claim 1. (*emphasis added, see, claim 1*). Cloonan does not provide the missing teaching or suggestion with respect to claim 1. Accordingly, the combination of Bunn and Cloonan cannot render obvious claim 1.

The cable modem system of Bunn includes a cable modem termination system (CMTS) coupled to a cable modem via a hybrid fiber-coaxial (HFC) cable network. (*see, Bunn, paras. [0064] through [0071] and Bunn, FIG. 1*). The CMTS of Bunn

operates to receive and process data packets transmitted to it in accordance with the protocols set forth in the DOCSIS specification. However... the [CMTS] can also operate to receive and process data packets that are *formatted using proprietary protocols* that extend beyond those provided by the DOCSIS specification, such as data packets transmitted by the [cable modem].

(*emphasis added, see, Bunn, para. [0071]*).

Thus, in contrast to claim 1 that recites "a first device that supports at least one *proprietary communication parameter* associated with bandwidth utilization and other devices that support said at least one *proprietary communication parameter*," Bunn discloses a CMTS "to receive and process data packets that are *formatted using proprietary protocols*." (*emphasis added, see, Bunn, para. [0071]*).

In contrast to claim 1, the "proprietary protocols" of Bunn relate to formatting of the data packets themselves, whereas "the one or more proprietary communication parameters associated with bandwidth utilization" relate to parameters for transmission

of the data packets. According to the Applicant's specification, the "one or more proprietary communication parameters associated with bandwidth utilization" as recited in claim 1 may "include a modulation rate, a base rate, or an alpha value." (*see*, Applicant's Specification, Page 25-26, para. [0093]). Thus, the "one or more proprietary communication parameters associated with spectrum utilization" relate to parameters for transmission of the data packets from/to a CMTS to/from one or more cable modems to allow for more efficient bandwidth utilization. On the other hand, "the proprietary protocols" of Bunn "increases the bandwidth capacity of high-speed DOCSIS cable modem networks by employing field level encoding rather than simple byte substitution" through the formatting of the data packets. (*see*, Bunn, para. [0022]). In other words, the "one or more proprietary communication parameters associated with bandwidth utilization" as recited in claim 1 more efficiently use the existing bandwidth of the communication system by optimizing the communication parameters that govern the transmission of data, whereas the "proprietary protocols" of Bunn increase the bandwidth capacity of the communication system through formatting of data packets. Therefore, Bunn does not teach or suggest at least the steps of "establishing a logical channel for communication between a first device that supports at least *one proprietary communication parameter* associated with bandwidth utilization and other devices that support said at least *one proprietary communication parameter*" and/or "receiving registration information from a second device, wherein said registration information indicates that said second device supports said at least *one proprietary communication parameter*" as recited by claim 1. (*emphasis added, see, claim 1*).

Cloonan does not provide the missing teaching or suggestion with respect to claim 1. Accordingly, the combination of Bunn and Cloonan cannot render obvious claim 1. Dependent claims 2-3 are likewise not rendered obvious by the combination of Bunn and Cloonan for the same reasons as claim 1, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 1-3 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claim 13 recites a cable modem termination system (CMTS) for improving channel efficiency in a cable modem system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard. The CMTS includes:

an upstream channel manager adapted to establish a logical channel for communication with cable modems that support at least one proprietary communication parameter associated with bandwidth utilization; and

a registration module adapted to receive registration information from a cable modem, wherein said registration information indicates that said cable modem supports said at least one proprietary communication parameter, and to assign said cable modem to said logical channel in response to receiving said registration information.

(see, claim 13)

For reasons discussed above in regard to claim 1, Bunn does not teach or suggest at least the features of "an upstream channel manager adapted to establish a logical channel for communication with cable modems that support at least one proprietary communication parameter associated with bandwidth utilization" and/or "a registration module adapted to receive registration information from a cable modem, wherein said registration information indicates that said cable modem supports said at least one proprietary communication parameter, and to assign said cable modem to said logical channel in response to receiving said registration information" as recited by claim 13. Cloonan does

not provide the missing teaching or suggestion with respect to claim 13. Accordingly, the combination of Bunn and Cloonan cannot render obvious claim 13. Dependent claims 14 and 17 are likewise not rendered obvious by the combination of Bunn and Cloonan for the same reasons as claim 13, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 13-14 and 17 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Claim 25 recites a computer program product comprising a computer useable medium having computer program logic recorded thereon for enabling a processor to facilitate communication between devices in a broadband communication system that complies with a Data Over Cable Service Interface Specification (DOCSIS) standard.

The computer program logic includes:

means for enabling the processor to establish a logical channel for communication between a first device that implements at least one proprietary communication parameter associated with bandwidth utilization and other devices that support said at least one proprietary communication parameter;

means for enabling the processor to receive registration information from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter; and

means for enabling the processor to assign said second device to said logical channel in response to receiving said registration information.

(see, claim 13)

For reasons discussed above in regard to claim 1, Bunn does not teach or suggest at least the features of a "means for enabling the processor to establish a logical channel for communication between a first device that implements at least one proprietary

communication parameter associated with bandwidth utilization and other devices that support said at least one proprietary communication parameter" and/or a "means for enabling the processor to receive registration information from a second device, wherein said registration information indicates that said second device supports said at least one proprietary communication parameter" as recited by claim 25. Cloonan does not provide the missing teaching or suggestion with respect to claim 25. Accordingly, the combination of Bunn and Cloonan cannot render obvious claim 25. Dependent claims 26-27 are likewise not rendered obvious by the combination of Bunn and Cloonan for the same reasons as claim 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 25-27 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**Bunn in view Cloonan and in view of Vogel**

Claims 4, 15, and 28 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bunn in view Cloonan and in view of U.S. Patent No. 7,089,580 to Vogel et al. (herein "Vogel"). Applicant respectfully traverses the rejection and provides the following arguments to support patentability as follows:

For reasons discussed above in regard to claim 1, the combination of Bunn and Cloonan does not teach or suggest each and every feature of independent claims 1, 13, and 25. Vogel does not provide the missing teaching or suggestion with respect to claims 1, 13, and 25. Accordingly, the combination of Bunn, Cloonan, and Vogel cannot render obvious claims 1, 13, and 25. Dependent claims 4, 15, and 28 are likewise not rendered obvious by the combination of Bunn, Cloonan, and Vogel for the same reasons as claims 1, 13, and 25, from which they depend, and further in view of their own



respective features. Accordingly, Applicant respectfully requests that the rejection of claims 4, 15, and 28 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**Bunn in view Cloonan and in view of Graham Mobley**

Claims 5, 16, and 29 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bunn in view Cloonan and in view of U.S. Patent Application Publication No. 2003/0053493 to Graham Mobley et al. (herein "Graham Mobley"). Applicant respectfully traverses the rejection and provides the following arguments to support patentability as follows:

For reasons discussed above in regard to claim 1, the combination of Bunn and Cloonan does not teach or suggest each and every feature of independent claims 1, 13, and 25. Graham Mobley does not provide the missing teaching or suggestion with respect to claims 1, 13, and 25. Accordingly, the combination of Bunn, Cloonan, and Graham Mobley cannot render obvious claims 1, 13, and 25. Dependent claims 5, 16, and 29 are likewise not rendered obvious by the combination of Bunn, Cloonan, and Graham Mobley for the same reasons as claims 1, 13, and 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 5, 16, and 29 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**Bunn in view Cloonan and in view of Rakib**

Claims 6-8, 18-20, and 30-32 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bunn in view Cloonan and in view of U.S. Patent Application Publication No. 2005/0025145 to Rakib et al. (herein "Rakib"). Applicant

respectfully traverses the rejection and provides the following arguments to support patentability as follows:

For reasons discussed above in regard to claim 1, the combination of Bunn and Cloonan does not teach or suggest each and every feature of independent claims 1, 13, and 25. Rakib does not provide the missing teaching or suggestion with respect to claims 1, 13, and 25. Accordingly, the combination of Bunn, Cloonan, and Rakib cannot render obvious claims 1, 13, and 25. Dependent claims 6-8, 18-20, and 30-32 are likewise not rendered obvious by the combination of Bunn, Cloonan, and Rakib for the same reasons as claims 1, 13, and 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 6-8, 18-20, and 30-32 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**Bunn in view Cloonan and in view of Limb**

Claims 11-12, 23-24, and 35-36 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bunn in view Cloonan and in view of U.S. Patent Application Publication No. 2007/0076717 to Limb et al. (herein "Limb"). Applicant respectfully traverses the rejection and provides the following arguments to support patentability as follows:

For reasons discussed above in regard to claim 1, the combination of Bunn and Cloonan does not teach or suggest each and every feature of independent claims 1, 13, and 25. Limb does not provide the missing teaching or suggestion with respect to claims 1, 13, and 25. Accordingly, the combination of Bunn, Cloonan, and Limb cannot render obvious claims 1, 13, and 25. Dependent claims 11-12, 23-24, and 35-36 are likewise

not rendered obvious by the combination of Bunn, Cloonan, and Limb for the same reasons as claims 1, 13, and 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 11-12, 23-24, and 35-36 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

**Bunn in view Cloonan and in view of Limb and further in view of Rakib**

Claims 9-10, 21-22, and 33-34 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Bunn in view Cloonan and in view of Limb and further in view of Rakib. Applicant respectfully traverses the rejection and provides the following arguments to support patentability as follows:

For reasons discussed above in regard to claim 1, the combination of Bunn and Cloonan does not teach or suggest each and every feature of independent claims 1, 13, and 25. The combination of Limb and Rakib does not provide the missing teaching or suggestion with respect to claims 1, 13, and 25. Accordingly, the combination of Bunn, Cloonan, Limb, and Rakib cannot render obvious claims 1, 13, and 25. Dependent claims 9-10, 21-22, and 33-34 are likewise not rendered obvious by the combination of Bunn, Cloonan, Limb, and Rakib for the same reasons as claims 1, 13, and 25, from which they depend, and further in view of their own respective features. Accordingly, Applicant respectfully requests that the rejection of claims 9-10, 21-22, and 33-34 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

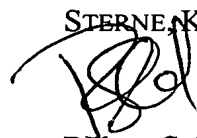
***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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